

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An ultrasonic transmitting and receiving apparatus comprising:
an ultrasonic transducer array including plural ultrasonic transducers for transmitting ultrasonic waves and receiving ultrasonic waves reflected from an object to be inspected;

drive signal generating means for generating drive signals for respectively driving said plural ultrasonic transducers;

transmission control means for controlling said drive signal generating means such that ultrasonic waves to be transmitted from said plural ultrasonic transducers form ~~a~~at least one transmission beam to be transmitted in at least one direction;

reception control means for performing reception focusing processing on plural detection signals obtained based on ultrasonic waves received by said plural ultrasonic transducers so as to form ~~a~~at least one reception focal point in at least one direction thereby forming ~~a~~at least one reception beam; and

control means for changing directivity of plural ultrasonic components constituting the at least one transmission beam in accordance with ~~a~~at least one sound ray direction in which the at least one transmission beam is transmitted, and/or changing directivity of plural ultrasonic components constituting the at least one reception beam in accordance with ~~a~~at least one sound ray direction in which the at least one reception focal point of the ~~receiving~~at least one reception beam is formed;

wherein said control means changes the directivity of each ultrasonic component by changing a number of drive signals to be simultaneously applied to adjacent ultrasonic

transducers for forming the ultrasonic component based on a selected one of directivity control patterns stored in a transmission delay pattern storage unit, and/or changes the directivity of each ultrasonic component by changing a number of detection signals simultaneously obtained and to be used for forming the ultrasonic component based on a selected one of directivity control patterns stored in a reception delay pattern storage unit.

2. (currently amended): An ultrasonic transmitting and receiving apparatus according to claim 1, wherein said control means makes the directivity of said ultrasonic components stronger as an angle formed by a front direction of said ultrasonic transducer array and said at least one sound ray direction becomes smaller.

3. and 4. (canceled).

5. (currently amended): An ultrasonic transmitting and receiving apparatus according to claim 1, wherein said control means performs weighting on the plural drive signals to be used ~~when~~ simultaneously applied to the adjacent ultrasonic transducers for forming said ultrasonic components component.

6. (currently amended): An ultrasonic transmitting and receiving apparatus according to claim 2, wherein said control means performs weighting on the plural drive signals to be used ~~when~~ simultaneously applied to the adjacent ultrasonic transducers for forming said ultrasonic components component.

7. and 8. (canceled).

9. (currently amended): An ultrasonic transmitting and receiving apparatus according to claim 1, wherein said reception control means performs reception focusing processing on ~~said at least one direction~~ plural directions in which the at least one transmission beam is transmitted so as to form reception focal points in the plural directions.

10. (currently amended): An ultrasonic transmitting and receiving apparatus according to claim 2, wherein said reception control means performs reception focusing processing on ~~said at least one direction~~ plural directions in which the at least one transmission beam is transmitted so as to form reception focal points in the plural directions.

11. and 12. (canceled).

13. (currently amended): An ultrasonic transmitting and receiving apparatus according to claim 5, wherein said reception control means performs reception focusing processing on ~~said at least one direction~~ plural directions in which the at least one transmission beam is transmitted so as to form reception focal points in the plural directions.

14. (currently amended): An ultrasonic transmitting and receiving apparatus according to claim 1, wherein said reception control means performs reception focusing processing on plural

directions in which the plural transmission beams are transmitted so as to form reception focal points in the plural directions, respectively.

15. (currently amended): An ultrasonic transmitting and receiving apparatus according to claim 2, wherein said reception control means performs reception focusing processing on plural directions in which the plural transmission beams are transmitted so as to form reception focal points in the plural directions, respectively.

16. and 17. (canceled).

18. (currently amended): An ultrasonic transmitting and receiving apparatus according to claim 5, wherein said reception control means performs reception focusing processing on plural directions in which the plural transmission beams are transmitted so as to form reception focal points in the plural directions, respectively.